

REMARKS

Claims 1 and 4-10 are pending in the application and stand rejected.

Applicants thank the Examiner for considering the Information Disclosure Statements filed March 5, 2009 and March 23, 2009.

Statement of Substance of Interview

The undersigned thanks the Examiner for conducting the telephonic interview on July 21, 2009. The rejections of claims 1 and 4-9 in view of Isaki and Gehman were discussed. The undersigned and Examiner agreed that the present specification does adequately describe the benefits and advantages of the present invention. Additionally, it was agreed that neither Isaki nor Gehman disclose the recited recess formed on a ceramic dielectric layer other than an uppermost ceramic dielectric layer.

Claim Rejection - 35 U.S.C. § 103(a)

Claims 1 and 4-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Isaki (JP 9021774) in view of Gehman (US Pub. 2005/0081603) in view of Naito (US Pub. 2003/0188968).

In this Office Action, the Examiner reasons:

Although the protective cap is not explicitly disclosed as “directly attached” to the ceramic wiring substrate as claimed, there are no benefits or advantages present in the application as to why the cover need be connected in such a manner. Any means for attaching the cover to the sensor assembly in order to provide protection of the sensor when in use would be equivalent to the claimed configuration. One of ordinary skill in the art would have been able to modify the apparatus of Isaki to connect the cover directly to the ceramic substrate if so desired. Additionally, the holding part 3 as seen in figures 1 and 2 could have been modified to be constructed from ceramic, and thus would be part of the ceramic substrate, with the cover directly attached thereto as claimed.

Office Action, p. 3

As such, the Examiner appears to be relying to two separate alternative modifications. The first, modifying Isaki such that the cover is directly attached to the ceramic substrate. The second, modifying Isaki's holding part 3 to be made of ceramic.

In response, in contrast to the Examiner's assertion, Applicants submit that the present specification does, in fact, express the benefits of attaching the cover to the sensor as claimed in claim 1. For example, on page 2 of the present specification, the inventors have identified the present problems with Isaki's constructions.

In particular, Isaki uses a heat-resistant liquid crystal polymer as a resin material for the square tub-like holding part. *See* Isaki ¶[0020]. As set forth in the present specification, "when the package made of resin is used, in the process of manufacture of the gas sensor or in use of the gas sensor attached to an automobile, the resin used to form the package may emanate gas." Specification, ¶[0003]. Further, when the "gas (e.g., silicon gas) contained in the thus-emanated gas adheres to the gas detection element, there is risk of a drop in gas detection accuracy." Specification, ¶[0004]. Consequently, the present invention solves these problems by providing a protective cap attached to a ceramic wiring substrate. Thus, the claimed structure eliminates the problems associated with the resin holding part 3 of Isaki.

In support of the rejection, the Examiner merely states that one of ordinary skill in the art would have been able to modify the apparatus of Isaki to connect the cover directly to the ceramic substrate *if so desired*. Additionally, the Examiner reasons that Isaki's holding part 3 *could have been modified* to be constructed from ceramic.

However, the Examiner has failed to articulate any reason as to why one of ordinary skill in the art would modify and/or combine the references as suggested. Namely, in order to establish a *prima facie* case of obviousness, the relevant law holds that it is necessary to identify

a reason that would have prompted a person of ordinary skill to combine (or modify) the elements in the way the claimed new invention does. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). Further, a *prima facie* case of obviousness cannot be maintained if one of ordinary skill would have not possessed at least a reasonable expectation of success in making such a combination and/or modification. However, the Examiner merely concludes, without any articulated reasoning or rationale underpinning, that one of ordinary skill would or could have been able to modify the prior art. That is, the Examiner fails to provide any reason why one of ordinary skill would have been prompted to modify Isaki to attach the cap 5 to the compound sensor chip 6 instead of the holding part 3, or to make the holding part 3 of a ceramic material.

In fact, the applied prior art only teaches applying a cover to a housing, not a substrate. In particular, Isaki and Gehman only support attaching a cover portion (cap 5 and cover 110) directly to a housing 102 (Gehman) or a holding part 3 (Isaki) which is made of a plastic or a resin. Moreover, the only reason for making the modification proposed by the Examiner is derived from Applicants' teachings in the present specification. As such, the Examiner has failed to establish a *prima facie* case of obviousness.

Furthermore, even if Isaki and Gehman could be combined as suggested, the suggested combination fails to disclose all the features recited in claim 1.

Claim 1 recites, *inter alia*, wherein the ceramic wiring substrate has a multilayer structure in which a plurality of ceramic dielectric layers are laminated; a recess is formed on a portion of a side surface of the ceramic wiring substrate which corresponds to a side surface of a

ceramic dielectric layer other than an uppermost ceramic dielectric layer which forms a top surface of the ceramic wiring substrate;

wherein the protective cap has a perpendicularly projecting portion extending along the side surface of the ceramic wiring substrate; and an engagement projection to be fitted into the recess is formed on the perpendicularly projecting portion.

Notably, regarding the recess which is formed on a side surface of the ceramic wiring substrate having a multilayer structure, and which a projecting portion of a protective cap for engagement is fitted, as described in claim 1, "a recess is formed on a portion of a side surface of the ceramic wiring substrate which corresponds to a side surface of a ceramic dielectric layer other than an uppermost ceramic dielectric layer which forms a top surface of the ceramic wiring substrate". Namely, it is specifically described that a recess is formed on a ceramic dielectric layer other than an uppermost ceramic dielectric layer which forms a top surface of the ceramic wiring substrate.

On the other hand, the Examiner indicates that Isaki (JP H09-21774) discloses the engagement structure which a cap 5 is attached to a holding member 3 of the wiring substrate as shown in figure 1. Additionally, the Examiner describes that it is easy to combine the engagement structure of Isaki with Gehman (US 2005/0081603 A1) to the holding member 3. However, the holding member 3 shown in figure 1 in Isaki is on an uppermost layer which forms a top surface of the wiring substrate. Accordingly, in view of Isaki disclosure, one of ordinary skill in the art would attach a cap 5 to an uppermost layer of the wiring substrate. Furthermore, even if a recess is formed on a portion of a side surface of the holding member 3 in Isaki and an engagement projection is formed on a cap 5 to be fitted into the recess, it would not be able to

secure a portion connected to the projecting portion of a cap 5, since the holding member 3 is an uppermost layer which forms a top surface of the wiring substrate. In other words, a cap 5 cannot be directly attached to the holding member 3.

Consequently, in the present invention as recited in claim 1, the recess which receives the engagement structure is formed on a ceramic dielectric layer other than an uppermost ceramic dielectric layer which forms a top surface of the ceramic wiring substrate. Therefore, the engagement structure is completely different from Isaki, which a cap 5 is attached to an uppermost ceramic layer which forms a top surface of the ceramic wiring substrate (the holding member 3). The combination of the engagement structure of Isaki with Gehman still cannot fulfill the requirements of the structure as disclosed in claim 1 in the present invention.

Thus, claims 1 and 4-9 are allowable for at least these reasons.

Claim Rejection - 35 U.S.C. § 103(a)

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Isaki in view of Gehman, Nato and Gole (US 6,893,892).

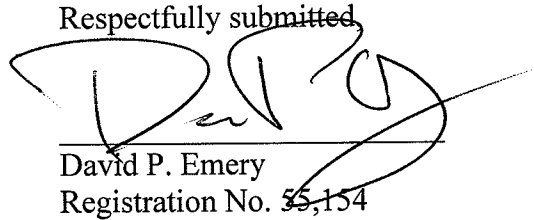
In response, because Gole, either taken alone or in combination with Isaki, Gehman and Naito, fails to remedy the above noted deficiencies of Isaki, Gehman and Naito as applied to claim 1, claim 10 is allowable, at least by virtue of its dependency.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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